

CLAIMS

1. A compound semiconductor epitaxial substrate for use in a pseudomorphic high electron mobility field effect transistor, comprising an InGaAs layer as a channel layer and an InGaP layer containing n-type impurities as a front side electron supplying layer, said InGaAs layer having an electron mobility at room temperature (300 K) of $8000 \text{ cm}^2/\text{V}\cdot\text{s}$ or more.
2. The compound semiconductor epitaxial substrate according to claim 1, further comprising an InGaP layer as a front side spacer layer between said channel layer and said front side electron supplying layer.
3. The compound semiconductor epitaxial substrate according to claim 2, further comprising an InGaP layer containing n-type impurities also as a back side electron supplying layer and comprising an InGaP layer as a back side spacer layer between said channel layer and said back side electron supplying layer.
4. The compound semiconductor epitaxial substrate according to claim 1, 2, or 3, wherein an In composition of the InGaAs layer constituting of said channel layer is 0.25 or more.
5. The compound semiconductor epitaxial substrate according to claim 1, 2, or 3, wherein GaAs layers each of which has a thickness of 4 nm or more are laminated on said channel layer in contact with a top surface and a bottom surface of said channel layer,

respectively.

6. A method for manufacturing the compound semiconductor epitaxial substrate according to claim 1, 2, or 3, characterized in that an epitaxial layer of each compound semiconductor is formed by employing an MOCVD method.

7. A method for manufacturing the compound semiconductor epitaxial substrate according to claim 4, characterized in that an epitaxial layer of each compound semiconductor is formed by employing an MOCVD method.

8. A method for manufacturing the compound semiconductor epitaxial substrate according to claim 5, characterized in that an epitaxial layer of each compound semiconductor is formed by employing an MOCVD method.